



INDOFINE Chemical Company, Inc.

121 Stryker Lane, Bldg. 30, Suite 1 • Hillsborough, NJ 08844 • U.S.A.

Phone: (908) 359-6778 • FAX: (908) 359-1179

website: www.indofinechemical.com

e-mail: chemical@indofinechemical.com

CERTIFICATE OF ANALYSIS

Catalog Number: P-004

Product Name: **PIPERLONGUMINE**
(Piplartine)

CAS Number: [20069-09-4]

Lot No.: 1808124

Molecular Formula: C₁₇H₁₉NO₅

Molecular Weight: 317.34

Melting Point: 120-124°C

Appearance: Off white powder

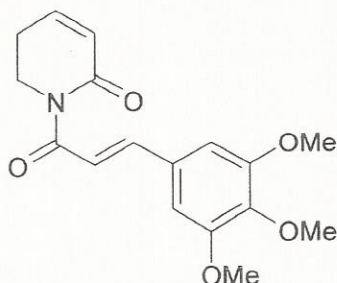
Solubility: Soluble in Chloroform

TLC: Hexane:Ethyl acetate (7:3)

NMR Spectrum: Enclosed (conforms to the structure)

Water content(KF): 0.29%

Purity(HPLC): 85.66%



Prepared by:
Ramesh Mandadi
Ramesh Mandadi
Director of Operations

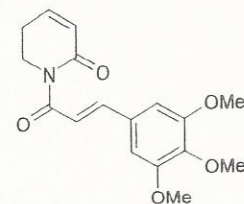
Reviewed and approved by:
Sujata Moton
S. Moton
VP





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HPLC ANALYSIS

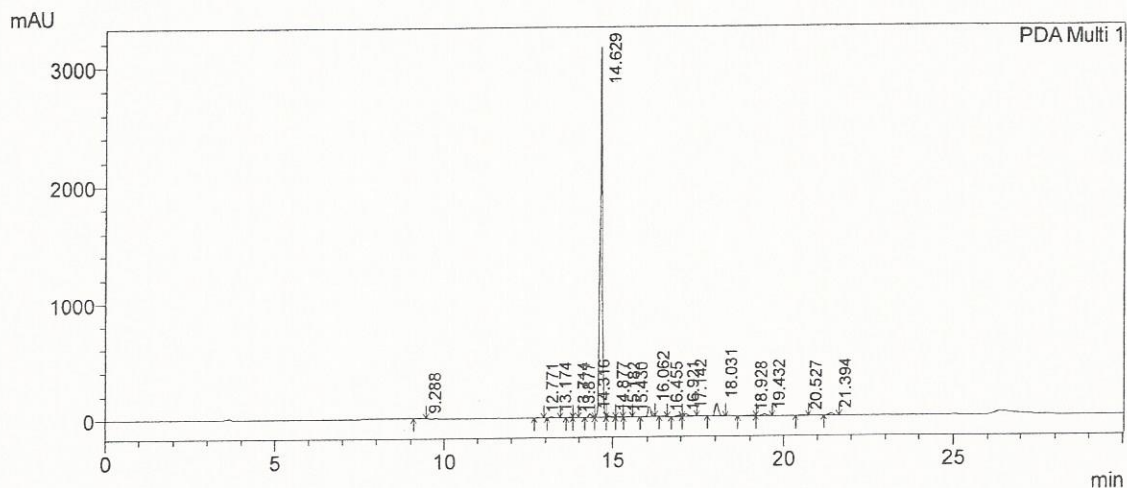
Acquired by : Sanjeev
Sample Name : PIPERLONGUMINE # 1
Sample ID :
Vial # : 9
Injection Volume : 20 uL
Data File Name : 19072018158.lcd
Method File Name : General Method.lcm

Catalog No.: P-004
Product Name: Piperlongumine
Lot No.: 1808124



Column: Inertsil ODS-3V: 250mm x 4.6mm, 5.0um
MP-A: Acetonitrile, MP-B: 10mM Ammonium acetate buffer
Flow Rate: 1.0 ml/min,
Gradient program : 0.01/10, 12/90, 20/90, 23/10, 30/10(% of A Conc)
Diluent: Methanol

<Chromatogram>



1 PDA Multi 1/254nm 4nm

PeakTable

PDA Ch1 254nm 4nm

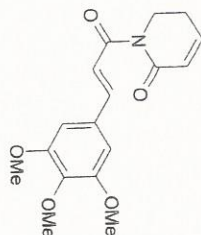
Peak#	Name	Ret. Time	Area	Area %	Relative Retention Time
1	RT:9.288	9.288	78420	0.47	0.635
2	RT:12.771	12.771	17447	0.10	0.873
3	RT:13.174	13.174	60881	0.36	0.901
4	RT:13.714	13.714	19069	0.11	0.937
5	RT:13.877	13.877	7534	0.04	0.949
6	RT:14.316	14.316	190340	1.13	0.979
7	Piperlongumine	14.629	14399626	85.66	1.000
8	RT:14.877	14.877	74869	0.45	1.017
9	RT:15.182	15.182	17022	0.10	1.038
10	RT:15.430	15.430	33431	0.20	1.055
11	Piperine	16.062	572067	3.40	1.098
12	RT:16.455	16.455	26377	0.16	1.125
13	RT:16.921	16.921	63074	0.38	1.157
14	RT:17.142	17.142	166373	0.99	1.172
15	RT:18.031	18.031	715398	4.26	1.233
16	RT:18.928	18.928	50329	0.30	1.294
17	RT:19.432	19.432	108783	0.65	1.328
18	RT:20.527	20.527	48385	0.29	1.403
19	RT:21.394	21.394	160835	0.96	1.462
Total			16810261	100.00	

Prepared by:
Ramesh Mandadi
Ramesh Mandadi
Director of Operations

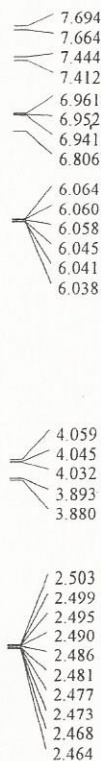
Reviewed and Approved by:
Sujata Moton
Sujata Moton
VP



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Piper longumine#2(1g)_proton-1-2.fdf
043358

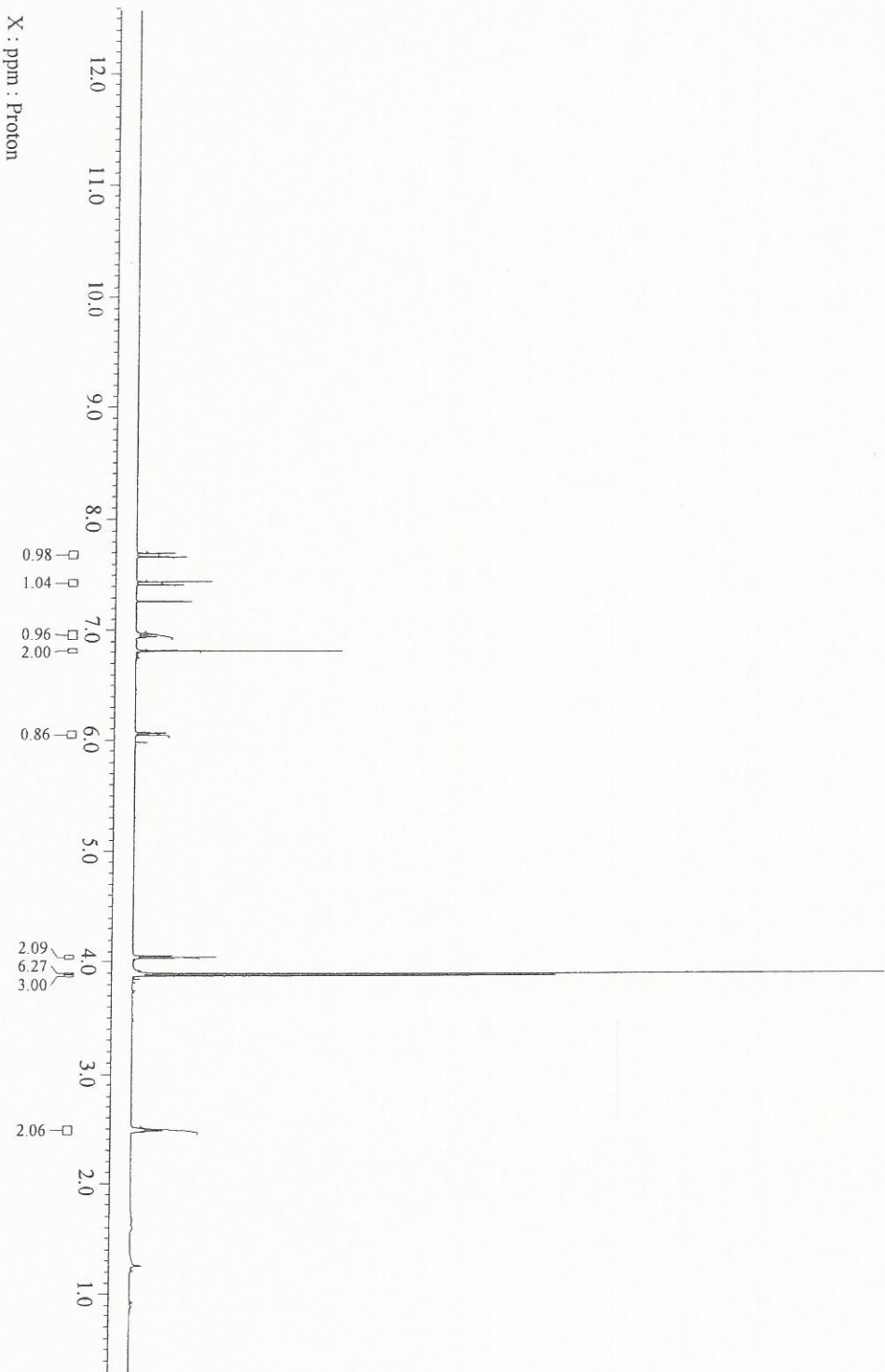


Catalog No.: P-004
Product Name: Piperlongumine
Lot No.: 1808124

----- PROCESSING PARAMETERS -----
sexp(0.2[hz], 0.0[s])
trapzoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machphase
ppm
reference(-0.01983[ppm], 0[ppm])
Derived from: Piper longumine#2(1g)_proton-1-

Filename = Piper longumine#2(1g)_prot
Instrument = NMR-500MHz (JEOL)
Instrument id = NMR-02
Author = Kishore.1378
Reviewed by = Ramesh
Solvent = CHLOROFORM-D
Spectrometer = JNM-ECZ500K/S1
Experiment = proton.jxp

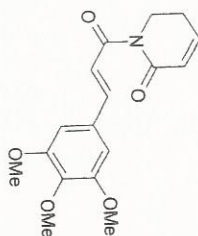
Acquisition Parameter
X_Domain = 1H
X_Offset = 7.0[ppm]
X_Sweep = 11.28158845[kHz]
Scans = 16
Relaxation_Delay = 2[s]



X : ppm : Proton



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Piper longumine#2(1g)_proton-1-2.jdf
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7.694
7.664

7.444
7.412

6.970
6.961
6.952
6.941
6.933
6.806

6.064
6.060
6.058
6.045
6.041
6.038



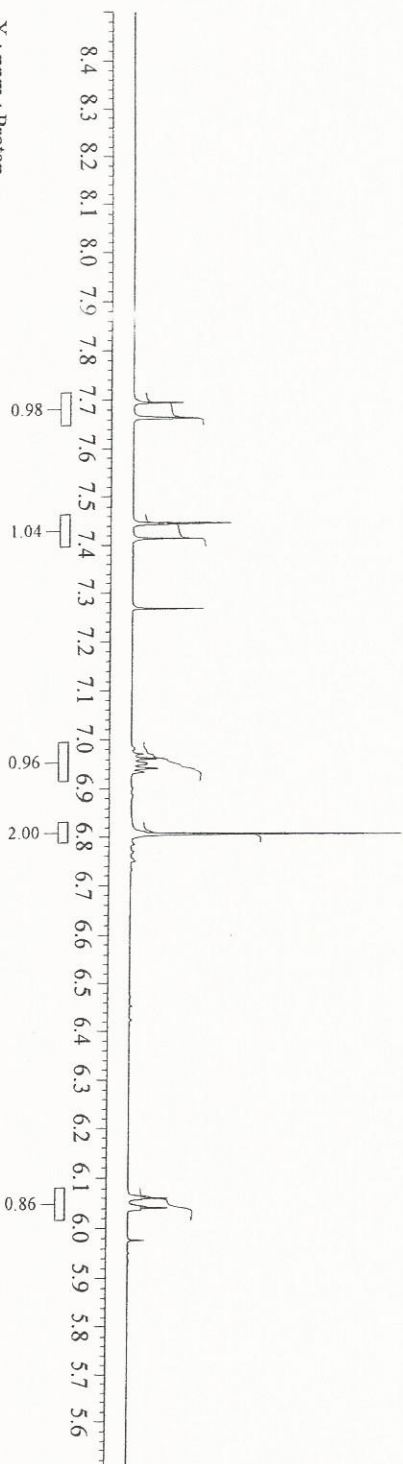
Catalog No.: P-004
Product Name: Piperlongumine
Lot No.: 1808124

----- PROCESSING PARAMETERS -----
exp(0.2[Hz], 0.0[s])
trapezoid(0[%], 0[%], 80[%], 100[%])
zerofill(1)
fft(1, TRUE, TRUE)
machinephase
ppm
reference(-0.01983[ppm], 0[ppm])

Derived from: Piper longumine#2(1g)_proton-1-

Filename = Piper longumine#2(1g)_prot
Instrument = NMR-500MHz (JEOL)
Instrument id = NMR-02
Author = Kishore1378
Reviewed by = Ramesh
Solvent = CHLOROFORM-D
Spectrometer = JNM-ECZ500R/S1
Experiment = proton.jxp

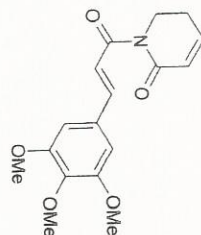
Acquisition Parameter
X Domain = 1H
X_Offset = 7.0[ppm]
X_Sweep = 11.28158845[KHz]
Scans = 16
Relaxation_Delay = 2[s]



X : ppm : Proton



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Piper longumine#2(1g)_proton-1-2.jdf
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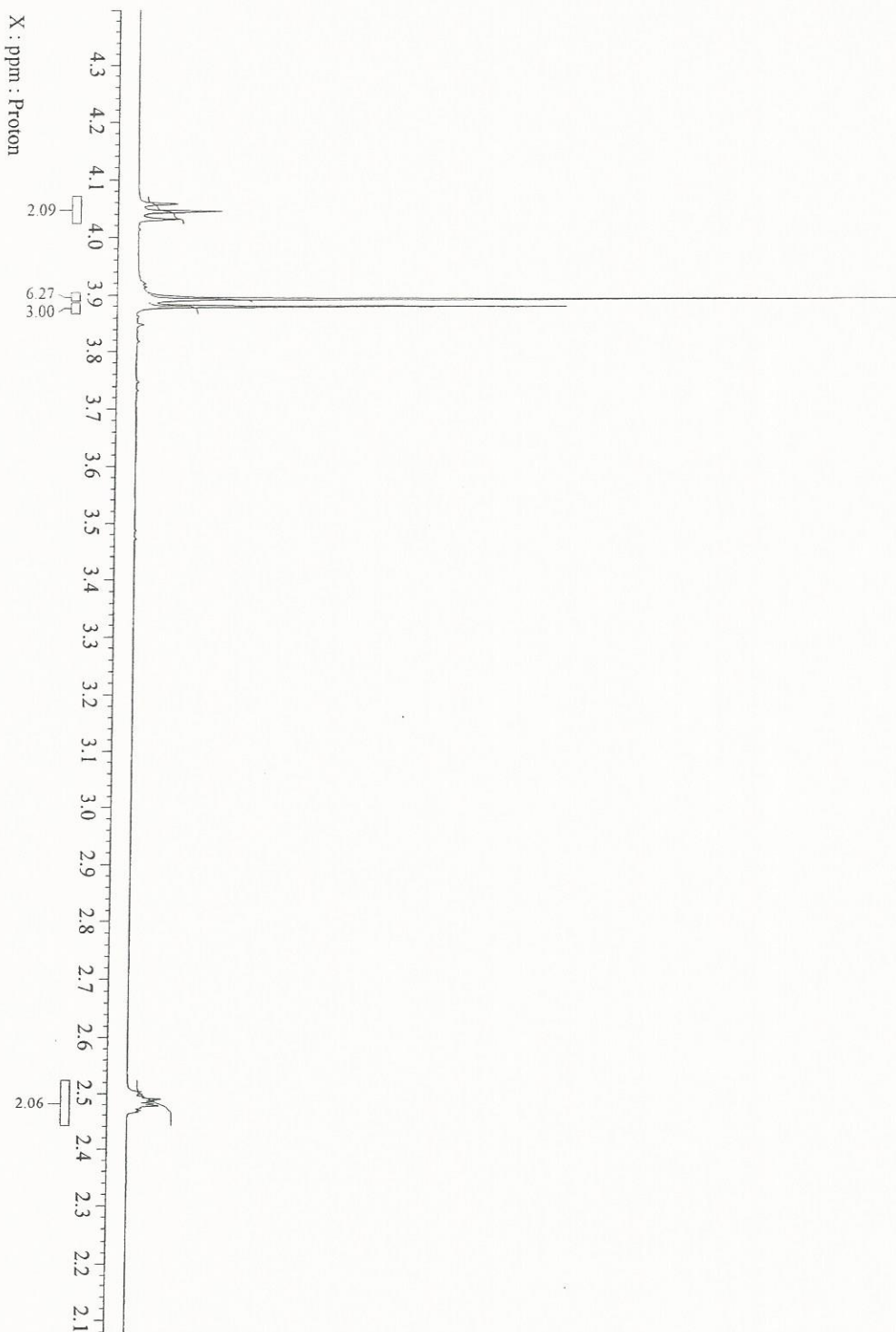
4.059
4.045
4.032
3.893
3.880

2.503
2.499
2.495
2.490
2.486
2.481
2.477
2.473
2.468
2.464

----- PROCESSING PARAMETERS -----
sexp (0.2[Hz], 0.0[s])
trapezoid (0[%], 0[%], 80[%], 100[%])
zerofill (1)
fft (1, TRUE, TRUE)
machinephase
ppm
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